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Reimagining the Stacks: Classroom Technology and Library Collaboration for Writing in the Disciplines

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Reimagining the stacks:
Classroom technology and library collaboration for Writing in the Disciplines

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This article details the process by which one university redesigned a first year writing course to better promote discipline-specific and best-practice research techniques. The program offers experiential learning activities through scholarly collaboration, using library staff as mentors, producing an open-access peer-reviewed student journal, and emphasizing face-to-face interaction of peer research communities. It has the potential to establish for students in high school, community colleges and universities that research writing is fundamentally about joining and contributing to a conversation.

Key Words: Research, Writing, Composition, Technology, Library, Rhetoric

Introduction

In fall 2014 the composition staff at Missouri University of Science and Technology initiated a redesign of English 1160, our Composition II course, because we had grown increasingly uncomfortable with the established idea of the "research paper"—English 1160's central writing assignment. Research papers in general education writing courses often provide little value beyond the purpose of validating a writer's initiation into an academic community of one—the instructor (Burton & Chadwick, 2000; Hall, 2006; Hilyard, 2012; Sidler, 2005; Sutton, 1997). Our current incarnation of the research paper assignment in English 1160 exacerbated those difficulties. Although the goals and objectives of the course were recently overhauled to provide students with "access to the language of the academy" via a current-traditional constructivist course (Reardon and Wulff, 2015), student writing was situated as an exchange between only the instructor and student. Larger, important issues of writing in specific contexts for specific audiences was missing. We also recognized that students do not just enter the language of one academic discourse community, but several (Flowerdew & Wang, 2015; Hinkel, 2013; Wingate & Tribble, 2012; Winsor, 2015). A one-size-fits-all research discourse assignment sequence ignored the realities of writing conventions in diverse—and often disparate—research communities. These types of assignments also, we believed, did not encourage students to cross organizational, argumentative, and genre borders they might be guarding,

as noted by Reiff and Bawarshi (2011), who suggested that "comfort with reformulating and transforming existing resources may serve students well in accessing and adapting to future writing contexts" (p. 330).

Additionally, at our mid-sized technical university, in which 75% of students major in engineering, and another 10% are in STEM-related fields, research writing courses are   traditionally considered skills panaceas by our faculty—a long-standing perception in education   (Zhu, 2004). The general belief among our colleagues across campus is that in English 1160 students learn generic, transferrable research writing strategies that can be grafted onto any   research writing situation in any discipline. Current research in composition, however, challenges this assumption of broad skills transfer, and instead emphasizes the situated nature of   writing—that it is shaped by context, reader need, and rhetorical situation (Driscoll, 2011; Fisher, 2012; Merrill, 2004; Rich, Miller, & DeTora, 2011; Troia, Shankland, & Wolbers, 2012). At best, transfer of learning must be reshaped for new situations and audiences (DePalma & Ringer, 2011).

Prior to the fall 2014 redesign, we had already begun the process of rethinking the idea of skills transfer in our first-year writing courses. In recent years, English 1160 had been overhauled as a result of a comprehensive writing program assessment initiative, led by our Writing Program Administrator (Reardon and Wulff, 2015) when he started his position with the English department in 2011. The assignment sequence for English 1160 was constructed to help students develop a single argument through multiple approaches and access points. First, students wrote a rhetorical analysis in which they described an author's rhetorical strategies in a scholarly article   chosen by students from within their own research topics. Next, students analyzed sources through two research synthesis essays: an essay in which they evaluated the success of an author's argument, and another essay in which students compared two authors' opposing points of view on a similar topic. Finally, students wrote an argumentative research essay that built upon the analysis they had done for their three preceding papers (Reardon and Wulff, 2015).

The writing curriculum overhaul featured a sequence of assignments that integrated   pedagogical best practices, which we achieved by breaking down the research process into a sequence of tasks. From this sequence we retained three assignments that have been successful:
- Rhetorical Analysis, in which writers investigated an author's argument and craft;

- Evaluative Synthesis, an assignment where "instructors guide students in examining claims, evidence, and the fallacies or proofs that link them" (Larson and Reardon, 2015);
- Annotated Bibliography, so students can practice and receive feedback on building a references list.

We decided after teaching the overhauled course for a year that English 1160 would be further improved by situating students' research within their own majors. Rather than aim for a broad transfer of skills, we would instead position our students' research in specific rhetorical communities. Our examination of student feedback through end-of-course surveys reinforced this direction. The surveys revealed that students wanted much more specific guidance in navigating research writing in their own fields. When we as a composition faculty discussed this feedback, we agreed that the broad, general topics we used for assignments in the overhauled English 1160 course exacerbated contextless writing—these broad topics privileged instructor evaluation of students' writing as a "stamp of approval" for what we suspect may have been an obscure benchmark of writing proficiency. Furthermore, as Harrington (2008) observed, academic writing is not a monolithic practice or pedagogy, but is instead complex and recursive, subject to nearly constant change as discourse communities evolve and exchange with one another (p. 56). We discussed as a writing faculty if our assignment sequence was veering too closely toward a stratified series of assumptions about writing skills. We had been using assignment topics drawn from textbook reader units—typical examples included "technology and privacy" or "social class and inequality." These vague, expansive topics underscored a pedagogical assumption that students write their course essays for a "general, educated audience." In other words, audience is rarely or not at all a consideration in rhetorically-driven courses where these topics tended to appear, and produced ethical position papers for no discernible readership.

We instead began to look for models of writing instruction that would engage students in "finding their place in an academic exchange" (Sommers, 2008, p. 156.). Through surveys and interviews with students both during and after our English 1160 courses, we learned that many students had difficulty connecting these topics with their future goals as writers and professionals. These challenges appear consistent with Yancy, Robertson, and Taczak's (2014) assertion that students must believe in the connectivity of their writing tasks to their future selves—and those future selves tend to very career-focused. Additionally, we moved forward in our redesign based on Bizup's (2014) principle that "academic researchers and writers work not simply as individuals but as members of specific disciplines and professions, all of which have their own

customary ways of classifying their materials" (p. 74). If students were going to write for their disciplinary communities, we decided they needed to learn those classification and organizational systems, or as Bizup describes it, join "a discipline as a professional means of entering into that discipline's ongoing debates, not merely writing on certain sanctioned topics" (p. 81).

We were satisfied with the skills our assignments asked students to practice: rhetorical analysis and research synthesis. But the writer-reader relationship needed significant improvement if we were to guide students in developing "disciplinary ways of thinking and arguing" (Bean, 2011, p. 233). In addition to rethinking our assignments so that students would be writing for their disciplinary communities, we also wanted to place more authorial autonomy in the hands of our students. In our newest redesign of English 1160, students would introduce instructors to a discipline's thinking and writing after first investigating and analyzing that discipline's rhetorical writing conventions. We also wanted students to engage with each other, and share their research with their peers.

Finally, we wanted students to practice communicating their research with a broader, interested readership. Ultimately, we would distance ourselves as instructors from the onerous function as authoritative bestowers of both content knowledge and skills transfer, which are perpetuated by instructors who "too often base their classroom practices on what they 'think' is best for their students because they are unaware of or resistant to research-supported evidence to the contrary" (Allan, Driscoll, Hammontree, Kitchens, & Ostergaard, 2015). The traditional practice of instructing students on MLA or APA formatting and application of a common style guide, for example, gave way to a cooperative analysis of the formatting and style conventions of the students' disciplines. This collaborative analysis meant that the instructor was not required to come to the classroom with expert knowledge in discipline-specific citation styles; rather, the instructor would help students find the appropriate style guide for their discipline, and then work with students on the interpretation of that style's requirements.

Furthermore, the instructor was not required to inform students about accepted maxims or major conversations dominating students' disciplines in order to encourage unique, ambitious paper ideas. Instead, the instructor would guide students to major publications within the discipline, and would help students observe the conversational flow and embedded biases found in recent publications. While students learned the rhetorical and research practices of their fields, therefore, they would also educate us on those practices (Huang, 2014). Current scholarship demonstrates that in a course where students acquire significant authorial

autonomy for research   writing in their own fields, they develop greater audience awareness, and significantly-improved   understanding of the power relationships between reader and writer (Lo, Liu, & Wang, 2014). Students would also, we believed, become the class authorities regarding their own fields' best   practices in research writing; we adopted Hyland's (2013) argument that "we need to understand   the distinctive ways our disciplines have of addressing colleagues and presenting arguments, as it   is through language that academics and students conceptualise their subjects and argue their   claims persuasively" (p. 53).

We knew that integration of disciplinary communities into English 1160 meant moving   ourselves as instructors out of our comfort zones. Whereas previously in English 1160 we lived   within a safe boundary of the traditional humanities research paper, in our redesigned course we   would be greatly reducing our roles as authorities, and relying on students to analyze for   themselves and for us the rhetorical conventions of their fields. Our documentation competencies as instructors would also be challenged. Many instructors in our program required MLA   documentation style for research papers, which we believed was symptomatic of an unease   instructors have with WID approaches. We would need to guide our instructors in repurposing   their expertise less in developing an argumentative essay for an intended audience of one—the   instructor—and more as a guide in how to enter a professional conversation through research on the work of others.

We believe a description of this course re-design will be valuable for instructors for a   number of reasons. First, we will demonstrate how using Google Docs fostered research   communities among students, and collaborative instruction among teachers. Then we will   describe how our re-design assisted the library with its ongoing re-conceptualization of its role in   the university because of advances in technological resources. When partnered with the library in   our English 1160 redesign project, we served mutually beneficial purposes of bringing research   experts into our classes, and bringing our students back into the library. Lastly, we will discuss   how the course redesign prompted launch of our open access, peer-reviewed student journal   through the library's Digital Commons software. The journal's purpose is to increase   professional visibility for students' scholarly writing and aid the university and its academic   departments in recruitment, funding, and accreditation. We believe the course will serve, therefore, as an example of how use of educational technology, commitment to Writing in the Disciplines principles, and how student investment in the research and publication process can   benefit an entire educational community.

Google Docs and Flipped Classroom Principles

In observing published articles from within their major fields, students quickly notice that most articles they encounter attribute their content to a list of co-authors from a variety of institutions and disciplines. We ask our students to investigate each of the names that they have found in a chosen article—students must determine each author's credentials, research interests, and likely contribution to the article. This discovery process leads to an awareness of collaboration. Students begin to understand that most academic writing does not happen in a vacuum, but rather emerges from the cooperative work of a number of scholars who are pursuing the same research questions. In order to understand how that happens (and to foster a greater appreciation for those scholars who get swept into an "et al." reference), students are required to collaborate on several activities throughout the course. To facilitate a community of scholars, readers, and editors among our students, we used Google Docs as our primary writing and collaboration tool in the course. The learning curve with Google Docs is fairly intuitive, and students are already familiar with using it since they are provided with Google accounts at the university and use several Google tools during their first year of study at Missouri S&T. Most importantly, Google Docs was designed for collaboration—students and instructors can work together on writing in a way that is not possible with Microsoft Word. Students can also practice scaffolded e-reading and collaborative writing (Warschauer, Zheng, & Park, 2013; Zhou, Simpson, & Domizi, 2012), further strengthening their scholarly communities.

For instance, in one activity small groups of two to three students collaborate on a Google Doc containing a synthesis template derived from Graff and Birkenstein's (2009) *They Say, I Say: The Moves That Matter in Academic Writing*. Students are given two articles on a topic close to their major fields, which they access directly from the publisher via hyperlinks on the Google Doc. They must then decide together the best methods for quoting and paraphrasing in order to capture the author's arguments, and to judiciously introduce their own voice to the conversation. This activity allows students to encounter one another as scholars, and encourages them to share their interpretation of a text with one another.

As the semester progresses toward their final research paper, students use Google Docs again to draft a condensed version of their argument, which they share with and present to the full class. Classmates then respond to the draft at the bottom of the document, offering possible counterarguments, alternative solutions, and directed questions that will help the writer tailor her or his essay to fit the intended audience. This use of Google Docs enhances the traditional one-on-one or small group peer editing sessions by providing each

student feedback from each classmate, which affords a breadth of constructive criticism not previously available. These communities may be Google Doc's greatest advantage as a classroom tool: current research has reported increased levels of audience awareness as a result of engaging in collaborative writing activities using Google Docs (George, 2012; Spaeth & Black, 2012), especially if the value of educational technology is consistently discussed with students (Brodahl, Hadjerrouit, & Hanson, 2011).

We also used flipped classroom principles, in which lectures and practice activities are assigned as homework, to allow more face-to-face class time to be used for interactive learning and writer-reader feedback between instructors and students (Baker & Edwards 2011; Bishop & Verleger, 2013). For example, in establishing the difference between a specialized audience to whom the students' discipline-specific journals are targeted and a non-specialized, or popular, audience, students must observe the manner in which a message is changed as it is passed through a variety of media and received by diverse audiences. Students are asked to watch a video lecture that identifies key rhetorical changes (such as the suppression of hedging language, and an inverted presentation of evidence, methodology, and discussion) that are made when an academic breakthrough reaches popular media.

Following the video, students observe the standard academic formatting of an article made popular for its instigation of fears surrounding the measles, mumps, and rubella vaccine's possible link to autism: Wakefield et al.'s infamous, now-retracted 1998 *Lancet* article, "Ileal- lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children." Students then read the BBC article entitled "Child vaccine linked to autism," and articulate how the presentation of Wakefield's message changed from an academic medium to a popular medium in a paragraph of approximately 300 words. This paragraph is posted to a discussion board forum, and students are required to respond to three of their classmates' posts, further establishing a network of young scholars working together to describe how best to deliver academic insights to a variety of audiences.

By collaborating on our creation of instructional videos and short writing practice activities for the course, we allowed more time in class for students to engage their own scholarly reading and writing projects. During the class period, the instructor highlights research projects from selected students, and facilitates class discussions founded upon the flipped lessons, which are generally geared toward broadening or narrowing the focus of research topics and evalu-

ating supporting evidence, according to the student's needs. Students are expected to enter English 1160 after having completed English 1120—our first-year writing course—or its equivalent, but we readily acknowledge that students enter the course with wildly diverse experiences. Some have tested out of English 1120, and others have completed an AP or dual-credit first-year college writing course in high school, in which content and writing tasks often vary. Online video lectures, PowerPoints, and tutorials, housed in a course management system, can be resources for students who may be new to the material that they are expected to have covered by English 1160, and can also serve as a refresher for those whose skills may have lapsed since having encountered the material.

Library Integration

After choosing Google Docs as our primary writing and collaborative tool for English 1160, we next considered the specific content needs of the course, given our new focus on WID principles. We decided English 1160 needed expert assistance beyond those of us in the English department. As English instructors, we were met with three significant research obstacles during our transition to a WID course. First, we were unfamiliar with the major databases and academic journals our students' STEM disciplines. The kind of research that they were conducting required much more granular search results than could be returned by standard broad-based databases like Academic Search Complete. In order to fully investigate their topics, students needed to access datasets, technical reports, and conference proceedings that are not generally compiled by most standard multi-disciplinary databases. We found ourselves in need of a deeper understanding of STEM databases and the kinds of results those databases would return.

Secondly, scholarly articles in the STEM fields presented us with new citation styles which were generally variations on APA, but bore little resemblance to the traditional MLA style of writing courses housed in English departments. Lastly, we were engaging fields populated by scholars with whom we had not previously interacted in our classrooms. Gone were the familiar names so often anthologized in composition readers. Instead, our students would be choosing class readings from scholarly publications in their fields—nearly all of which were unfamiliar to many of us teaching the course. Our focus as instructors and experts therefore had to shift from an expert's close reading of a very familiar text, to reading for understanding and clarity in unfamiliar texts. In short, we would model the same reading practices we would ask of our students.

During our English 1160 redesign, the university's library had been re-contextualizing its relationship to the university with respect to outreach and technology, and the library's new director had approached our writing program to brainstorm collaborative efforts. Routinely, a writing instructor would bring the class to the library. The reference librarian would then lecture students on common databases and search query practices, and students would be expected to apply the information from that single lecture to all research projects for the rest of the semester. It had become clear to us that this "one class visit per semester" model was not facilitating return visits by students as the library had hoped (van Epps & Sapp Nelson, 2012), and instructors reported that students were not retaining the information from that lecture effectively enough to successfully apply it in their research projects. Collectively, the library and the writing program decided to increase student interaction with librarians, in order to improve students' familiarity with the library's resources, staff, and faculty, and thereby promote student comfort with the research process.

Students met with their reference librarians six times throughout the semester, and were encouraged to pursue individual follow-up meetings as their research projects progressed. During the initial meeting, reference librarians provided an introduction to Missouri S&T's full-text discovery tool and aggregator, Summon. Because Summon ingests items from our databases and records from our catalog, students returned a wide array of full-text materials, both digital and hard copy. As initial queries returned a daunting amount of results, librarians taught students to refine those results according to item limiters, content type, and publication date.

This real-time discovery allowed students to struggle through common roadblocks in the research process, while an advocate who was familiar with their fields' research practices was by their side, guiding them through the process, offering them encouragement, and helping them past the roadblocks. Because Summon mimics the single search box of Google and Google Scholar, students were comfortable—if not entirely proficient—with exploring the discovery tool as they would explore a standard Google search (Asher, Duke, & Wilson, 2013). In practicing search refinement under the guidance of a reference librarian, however, students recognized that they could no longer be passive search engine users, relying on the engine's algorithms to return results that would be most relevant to their projects. Through the librarians, students learned that the purpose of their first database search is to gain enough background information to understand the breadth of information that is available on the topic. From there, the librarians stressed the importance of playfulness, curiosity, and humility as they helped students narrow down their search terms until they had

only the most useful resources, offering light instruction in Boolean logic and insight into the idiosyncratic keyword preferences of each database. Recent research has demonstrated that a user's ability to assess the quality of a scholarly article is often dependent on the user's limited heuristics; thus the librarian's guidance is essential for a budding scholar to effectively evaluate the accuracy, completeness, objectivity, and representation of an article's content (Arazy & Kopak, 2010). In working with the librarians, therefore, students developed practical experience with the databases available to them, and honed their skills for evaluating the usefulness of articles returned by their search queries.

Appreciation for the research process that was fostered by the students' initial meeting with the librarians produced not only a credible source for the rhetorical analysis essay, but also an awareness of discipline-specific databases that were not quite as cumbersome as a non- discriminatory Summon search. As the semester progressed, reference librarians visited our English 1160 classes and introduced students to SCOPUS, a multidisciplinary index of the science, engineering, and social science literature. SCOPUS's strength is its citation –tracker: in SCOPUS, an article is linked to other sources that have cited that article, so that a researcher might trace an idea forward and backward through time, in order to understand how that idea has developed throughout a conversation (Burnham, 2006). For their synthesis projects, students were required to locate a source that was cited by two separate sources, and then to explain clearly and persuasively how those two additional sources had developed, illuminated, applied and/or disproved the concepts presented in the root source. Situating this synthesis project within the student's discipline, therefore, helps the student build upon the interpretive skills that have been developed through the Rhetorical Analysis by requiring the student to observe how scholars of the discipline interact with one another within the context of the scholarly article. Because the goal of the WID curriculum is to teach students to maintain their unique voices while also learning to write like scholars within their fields (Hardy & Clughen, 2012), this project asks students to look closely at the language and citation practices scholars use when addressing one another's research so that they might emulate that style as they engage in their own research projects.

The synthesis projects offered a perspective on citations which had not previously been imparted to our students. Rather than seeing citations as mere obligations that must be formed correctly for the preservation of the essay grade, students began to see webs of conversations and communities develop through scholars who cited one another in order to build on ideas. Students were then invited to reflect on the extent to which they were participants in those conversations and communities. To reinforce this scholarly awakening, students then

moved into the research paper. The class was separated into groups according to students' major disciplines, and were required to attend one discipline-focused database workshop with their reference librarians. This   approach is based on data shared by Walker, Li, Williams, Vaisvil, and Bohannon (2016) from the LILAC Project (Learning Information Literacy across the Curriculum), an ongoing empirical study in which students' information gathering is coded and analyzed. Through our discipline-focused database workshops, the reference librarians worked to mitigate the research languor that had become a symptom of the "Google factor," by which students tend to prefer generic search engines to library databases (Dale, Holland, & Matthews, 2006). The reference librarians introduced students to databases that were most relevant to their fields, and helped students survey popular publications in their disciplines, so that they could select a peer-reviewed journal for which they might prepare the Research Paper as a manuscript for submission. The research paper, therefore, was extricated from its traditional rhetorical vacuum, and situated within the   context of a specific conversation for specific publisher and audience. Because students had already developed their field-specific content knowledge, they were able to focus their efforts on organization and rhetorical strategies best suited for their specialized audience.

Publication: *S&T's Peer to Peer*

Writing for specific audiences, and for context and situation, becomes increasingly critical during a student's course of study. Because not all graduates will move on to advanced degrees, and because those who do move on to advanced degree programs will be busy learning their fields and applying their skills to future practices (Adams, 2011), interventions must be in place prior to graduation that will introduce students to the practice of disseminating information   to a diverse audience, particularly through publication. Additionally, employers of STEM graduates have indicated that because of increased reliance on online communication, writing   skills are becoming increasingly important (Miller, Russell, Cheng, & Skarbek, 2015), yet those writing skills are among the top deficiencies of their new employees (Sundberg et al., 2011). Studies have also indicated that graduate students often enter their advanced degree programs with insufficient writing skills for the effective dissemination of their scholarship (Li, 2006; Nielsen & Rocco, 2002). After submission of their research paper, therefore, our students then began work on their final writing project—a revision of their research essay for a larger, educated, but more diverse readership than for a specific academic journal. The audience of the final essay is described as a college-educated readership, not comprised of specialists within the   student's field. Students use popular magazine articles which reference academic projects

(such as those in *Popular Science* and *The New York Times*) as models. Essentially, students are writing for their English 1160 peers and for the rest of the university, which means that the presentation of the evidence must be re-evaluated so that references and allusions are clear relatable to a non-specialized audience. This re-writing activity provided students with insight into both the specific rhetorical structures that are unique to their disciplines—and sometimes unique to a particular journal—as well as the reader needs of a more disparate audience (Finegold, 2002; Stanford & Duwel, 2013). In re-packaging their research projects for two audiences, students became more attuned to the differing rhetorical conventions expected by specialized and non-specialized audiences.

Once again, a librarian visited each English class as students prepared their submissions to our new student peer-reviewed journal, *S&T's Peer to Peer*, in order to discuss an author's rights when negotiating copyright permissions during the publication process. This last re- connection with the library reinforced for students the library's significance throughout the research process, and that the library can be a crucial resource during an article's submission and publication preparatory stages. This visit also re-connected students with the importance of responsible and ethical integration of sources, in addition to students' rights regarding their own intellectual property. Following the completion of the course, the best final essays in each course section—those written for a non-specialized readership—were submitted for publication in *S&T's Peer to Peer.*

Five top-scoring essays from each English 1160 class are stripped of identifying information and deposited into a Google Drive folder. The following semester's English 1160 students then evaluate each article, offer suggestions for revision, and then rate each essay on a Likert scale according to the essay's accuracy, completeness, objectivity, and representation. The six-to-eight essays with the highest score following this English 1160 peer review process are then published in the journal. This journal is published through our library's Berkeley Electronic Press (bepress) software, which includes built-in double-blind peer reviewing portals, so that future classes of English 1160 will serve as editors for the publication. Thus they are situated as producers, reviewers, and consumers of published scholarship. The WID model, therefore, not only strengthens students' ability to communicate their academic endeavors to both specialized and non-specialized audiences, but it also encourages students to foster an appreciation for academic endeavors in fields beyond their own, and to acknowledge similarities and differences in research writing conventions across the curriculum.

Discussion: Revaluing Face-to-Face Interaction

Our extensive use of online delivery methods through flipped classroom principles and Google Docs provided more class time, but we also learned that our tendencies were to create more individual activities for students to complete on their computers in our computer classrooms. During these solitary writing assignments, students engaged with texts in their fields, but rarely considered how their in-class writing activities supported their own research or contributed to larger conversations in their disciplines. So while the flipped classroom did allow much more time for us in class, we found that the extra time was best spent in small group activities where students could discuss with one another their research, their writing, and their efforts to communicate their work to both disciplinary-specific and more general audiences. It was after these small group activities that students made the most significant communication progress in their writing—they developed more complex theses, discussed new and exciting research developments, and proposed counterarguments that they previously had not considered. It quickly became clear to students and faculty alike that students needed to look up from their computers and initiate face-to-face conversations with each other in order to bring the figurative communities of their disciplines and of academia as a whole into clearer context.

While they were working on their final essays near semester's end, each student presented her or his research to the class in a short presentation. This activity required students to communicate their research, their writing, and their contributions to conversations in their fields—all for a classroom audience with varying levels of knowledge regarding those fields. After a semester of engaging in the conversations of their disciplines, students learned to edit or explain disciplinary jargon, define concepts, and engage in a kind of rhetorical persuasion for an educated community outside their own disciplinary communities. During their presentations students were lively, enthusiastic, and committed to showing their peers the vitality and importance of their work. Many expressed a deep sense of validation among their peers for their work, and stronger confidence in the efficacy of their research.

Conclusion: Future Directions

In order to capitalize on the most positive aspects of this revised Composition II course, future course revisions will include further flipping of the traditional lecture/workshop classroom setting by converting class meetings to a blended online and face-to-face model. Recent research has demonstrated that the WID model allows students to become accustomed with the discourse of their academic communities before being expected to communicate within that discipline; once familiarity with the discipline's rhetorical landscape is established,

then students are able to   demonstrate their skills in information literacy with improved confidence (Ovadia, 2010). In future semesters, students will participate in the course online, and meet in discipline-specific focus groups once per week during the class's section time in order to establish that rhetorical familiarity. During the final weeks of the semester, the class will reconvene in a conference-style setting, during which they will present condensed versions of their research projects to their   classmates in order to gain presentation experience, and to gather feedback from an audience that is not comprised solely of specialists in their disciplines so that they might demonstrate their skills in argumentation and information literacy, and further differentiate between the rhetorical demands of divergent audiences.

Rather than receiving writing instruction and then being expected to implement that   instruction on their own, students will be expected to work with their instructor and focus group   to develop mature rhetorical analyses of texts and to generate arguments that are topical, innovative, and relevant to their major fields. Small, discipline-specific focus groups influence student learning through the establishment of metacommunities within the writing classroom, by   which students are both more responsible for contributing to group discussions and are able to receive feedback from peers who are familiar with their discipline's maxims (Gaudet, Ramer,   Nakonechny, Cragg, & Ramer, 2010). Location of the group meetings within the library will   foster familiarity with the library's resources, staff, and faculty, thereby reinforcing student comfort with the research process.

This project will develop a learning environment through English 1160 in which faculty become the facilitators of the research process, thus de-emphasizing direct instruction and   emphasizing faculty-student interactions. Because most faculty who teach English 1160 have not been trained in STEM fields, this approach also allows for students and educators to undergo the learning process together—students share the needs and goals of their major disciplines with the instructor, and the instructor helps them develop an awareness of the rhetorical strategies that are most effective in satisfying those needs and goals. The instructor, in essence, becomes the portal through which students meet and engage with the people who will be most influential throughout the student's career – namely, librarians and other scholars within the student's discipline. By   providing students with effective communication skills and the ability to discern the expectations   of specialized and non-specialized audiences, the English 1160 instructor helps to pave the way   for a student to promote her or his research ideas confidently in any arena.

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